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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,699	09/12/2003	Hitoshi Ishibashi	242582US2	7667

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EXAMINER

BEATTY, ROBERT B

ART UNIT PAPER NUMBER

2852

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/660,699

Applicant(s)

ISHIBASHI ET AL.

Examiner

Robert Beatty

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,8-12,23,25-30 and 32-36 is/are rejected.
- 7) ☒ Claim(s) 2-7,13-22,24,31 and 37 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1,8-11,23,25-30,32-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiroshima et al. in view of Komata (JP# 2001-312147) and Moriya (JP# 2001-27850).

Hiroshima teach an image forming apparatus using a transfer belt 6 (Fig.1) or 20 (Fig.5) and forming a color image by using an image carrier. A plurality of color images will be transferred onto a recording sheet via the transfer belts. The transfer belt 6 has bias applying roller 62 and support rollers 61 which are made of a resin/rubber material having a volume resistivity of $10^6 - 10^{10}$ ohm-cm (col.11, lines 51-64). The transfer belt 20 has bias applying roller 21 and support and drive rollers 22-24 which are made of rubber have a resistivity between $10^6 - 10^{10}$ ohm-cm (col.15, lines 17-33). The transfer belt has a resistivity of between $10^6 - 10^{10}$ ohm-cm. Specifically, Hiroshima teach everything claimed except forming the color image by using a plurality of image carriers and the surface roughness of the support/drive rollers having Rz of 6 μ m or more. In addition, forming images on both sides of the recording sheet, the bias transfer member being a blade, brush, or Mylar sheet, the image carrier being less than 40mm and the process of roughing is not taught.

Komata teach an image forming apparatus which forms a color image by using a plurality of image carriers 1a - 1d, and a transfer belt 7a supported by rollers 7b, 7d, 7e. Moriya teach an image forming apparatus for forming a color image by using a transfer belt 19, where the transfer belt is supported by rollers 20, 21 and 22. The drive roller 20 has a surface roughness Rz between 10 - 100 μm . It would have been obvious to one of ordinary skill in the art at the time the invention was made to form a color image using a plurality of image carriers rather than forming an image using one image carrier because even though the image forming apparatus becomes larger, the speed of forming the color image is increased. It further would have been obvious to one of ordinary skill in the art at the time the invention was made to make one of the support driving rollers having a surface roughness greater than 6 μm because sliding between the rollers and the belt can be prevented due to the increased adhesion between the two due to the roughness. In addition, the method of roughing the roller (using a die or sandblasting) is a process step which has little patentable weight in apparatus claims (see MPEP 2113). The examiner takes Official Notice that the concept of forming images on both sides of a recording sheet is very well known in the art for the purpose of forming duplex copies for use in a booklet. The examiner also takes Official Notice that the use of a brush, sheet, or blade for the bias transfer member instead of a roller is very well known in the art and are considered functional equivalents which perform the same function in the art. The examiner takes Official Notice that when using a plurality

of image carriers to form a color image it is well known to use an image carrier less than 40mm so as to keep the image forming apparatus as small as possible.

2. Claims 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiroshima et al. in view of Komata (JP# 2001-312147) and Asakura et al.

Hiroshima teach an image forming apparatus using a transfer belt 6 (Fig.1) or 20 (Fig.5) and forming a color image by using an image carrier. A plurality of color images will be transferred onto a recording sheet via the transfer belts. The transfer belt 6 has bias applying roller 62 and support rollers 61 which are made of a resin/rubber material having a volume resistivity of $10^6 - 10^{10}$ ohm-cm (col.11, lines 51-64). The transfer belt 20 has bias applying roller 21 and support and drive rollers 22-24 which are made of rubber have a resistivity between $10^6 - 10^{10}$ ohm-cm (col.15, lines 17-33). The transfer belt has a resistivity of between $10^6 - 10^{10}$ ohm-cm. Specifically, Hiroshima teach everything claimed except forming the color image by using a plurality of image carriers and the surface roughness of the support/drive rollers having Ra of 1.5 μ m or more.

Komata teach an image forming apparatus which forms a color image by using a plurality of image carriers 1a - 1d, and a transfer belt 7a supported by rollers 7b,7d,7e. Asakura et al. teach an image forming apparatus for forming a color image by using a transfer belt 50, where the transfer belt is supported by rollers 55a-55d. The drive roller 55a has a surface roughness Ra between 1.6 μ m

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(col. 12, lines 39-48). It would have been obvious to one of ordinary skill in the art at the time the invention was made to form a color image using a plurality of image carriers rather than forming an image using one image carrier because even though the image forming apparatus becomes larger, the speed of forming the color image is increased. It further would have been obvious to one of ordinary skill in the art at the time the invention was made to make the support driving rollers having a surface roughness Ra greater than 1.5 μm because sliding between the rollers and the belt can be prevented due to the increased adhesion between the two due to the roughness

3. Claims 2-7, 13-22,24,31,37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kasai et al., Kanazawa et al., Kabata et al., and Takano et al. teach various transfer belts with support rollers.

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5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Beatty whose telephone number is (571) 272-2130. The examiner can normally be reached on M-F from 9 to 6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Arthur Grimley, can be reached on (571) 272-2136. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1782.

A handwritten signature in black ink, appearing to read 'Robert Beatty', with a stylized, cursive script.

Robert Beatty
Primary Examiner
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May 30, 2005